

What Is Claimed Is:

1. A leaky-wave dual polarized slot type antenna, comprising:
 - 5 a first dielectric layer having a XY plane;
first and second feeding circuit sections formed on the top or lower portion of the first dielectric layer, comprising a plurality of first strip lines formed of a first loop with a designated shape from one side of the dielectric layer along the direction of the X-axis at a predetermined first period, and a plurality of second strip lines formed of a
10 second loop with a designated shape from the other side of the dielectric layer along the direction of the X-axis at the predetermined first period, in order to propagate electromagnetic waves ;
a second dielectric layer formed on the top portion of the first and second feeding circuit sections or the top portion of the first dielectric layer; and
15 a shielding layer formed on the top or lower portion of the second dielectric layer, transmitting electromagnetic waves input to the first and/or second feeding circuit sections as vertically polarized waves and/or horizontally polarized waves.
2. The antenna according to claim 1, wherein the first loop has a sine wave shape
20 and the second loop has a circular shape.
3. The antenna according to claim 1, wherein the first strip lines and the second strip lines are formed alternately to each other.
- 25 4. The antenna according to claim 1, wherein a distance between two arbitrary

neighboring first strip lines formed along the direction of the Y-axis as well as a distance between two arbitrary neighboring second strip lines formed along the direction of the Y-axis are constant.

5 5. The antenna according to claim 1, wherein the first strip lines are comprised of a pair of first and second sub-lines crossing both ends of the first slot.

6. The antenna according to claim 1, wherein a distance between two arbitrary neighboring first loops formed along the direction of the X-axis as well as a distance
10 between two arbitrary neighboring second loops formed along the direction of the X-axis are constant.

7. The antenna according to claim 6, wherein a predetermined period of the first loop formed on each of the first strip lines along the direction of the X-axis is same with
15 a predetermined period of the second loop formed on each of the second strip lines.

8. The antenna according to claim 1, wherein the first and second feeding circuit sections are divided by more than at least one central port of the Y-axis, the ports having designated shapes and lengths, and the first strip lines and the second strip lines
20 are symmetrical or asymmetrical around the ports.

9. The antenna according to claim 1, wherein the second shield layer comprises:
a first slot section composed of a first slot array with M first slots arrayed along the direction of the X-axis in N rows; and
25 a second slot section composed of a second slot array with M second slots

arrayed along the direction of the X-axis in N rows.

10. The antenna according to claim 9, wherein each of the first slot arrays formed along the X-axis has a first predetermined period to each other, and each of the second slot arrays formed along the Y-axis has a second predetermined period to each other.

11. A leaky-wave dual polarized slot type antenna, comprising:
a first dielectric layer having a XY plane;
a first feeding circuit sections formed on the top or lower portion of the first dielectric layer, comprising a plurality of first strip lines formed of a first loop with a designated shape from one side of the dielectric layer along the direction of the X-axis at a predetermined first period, propagating electromagnetic waves inputted;
a second dielectric layer formed on the top portion of the feeding circuit section;
and a first shielding layer formed on the top or lower portion of the second dielectric layer, radiating electromagnetic waves propagating on the feeding circuit section as vertically polarized waves or horizontally polarized waves.

12. The antenna according to claim 11, further comprising:
a third dielectric layer formed on the second shielding layer;
a second feeding circuit section formed on the top or lower portion of the third dielectric layer, comprising a plurality of second strip lines formed of a second loop with a designated shape from the other side of the third dielectric layer along the direction of the X-axis, in the opposite direction of the first strip lines formed on the first dielectric layer, at the predetermined first period, propagating electromagnetic waves inputted;

a fourth dielectric layer formed on the top portion of the second feeding circuit section; and a second shielding layer formed on the top or lower portion of the fourth dielectric layer, radiating electromagnetic waves on the second feeding circuit section as vertically polarized waves or horizontally polarized waves.

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